Solar Energy Technologies Program

High-Impact PV Supply Chain Webinar

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WEBINAR INFORMATION

U.S. DEPARTMENT OF ENERGY | Energy Efficiency & Renewable Energy

To join the webinar:

Reserve your Webinar seat now at:

https://www1.gotomeeting.com/register/530453209

To listen:

Dial 1-888-456-0320

Enter Participant Passcode: 28218 followed by the # sign

Directions may also be found at the EERE.gov Solar website:

At the EERE.energy.gov/solar website, look for Financial Opportunities tab, then Current Opportunities (on the left) which takes you to “High Impact Supply Chain Research and Development for Photovoltaic (PV) Technologies and Systems”

Actual web address is:

http://www1.eere.energy.gov/solar/financial_opps_detail.html?sol_id=326

Key Points

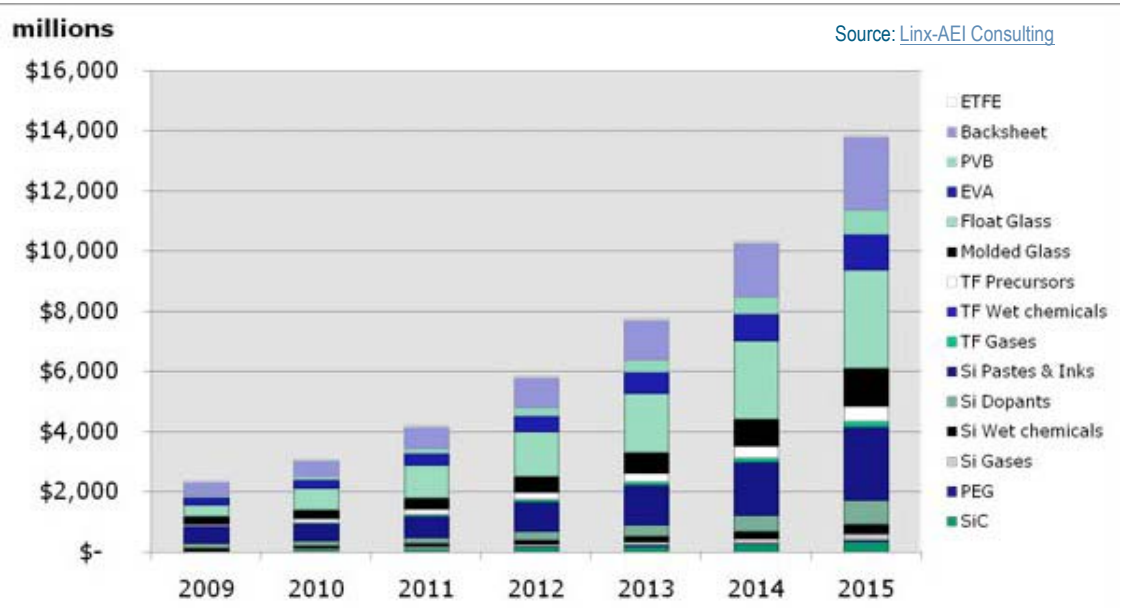
- The High-Impact PV Supply Chain ("PVSC") Funding Opportunity Announcement ("FOA") targets PV equipment and material suppliers to propose and accelerate the development of technologies which provide cost reductions with broad application across the industry

- Goals of the program are:
  1. Strengthen the domestic PV industry with the development of proprietary high impact technologies.
  2. Leverage corporate expertise from related fields to develop and optimize technologies for PV
  3. Developed near to mid-term (2-5 years) technologies under this program that can be streamlined into current manufacturing processes or existing products/systems.

Funding Information

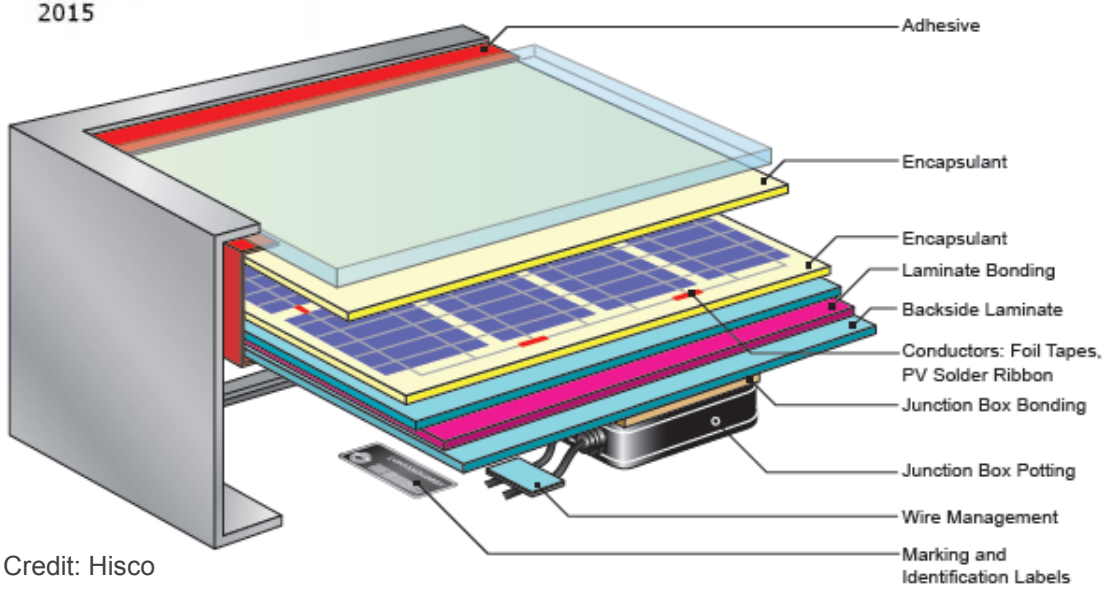
- Total DOE Funding will be between $25-$40 million in DOE Funds over three years and is dependent upon the quality of applications received.
- Range of Award Sizes
  - Maximum Amount of Federal Funds is $1.6M/year up to $4.8M over 3 years with annual stage gate reviews.
  - Minimum is $300,000/year or $600,000 over 2 years.
  - The anticipated amount of federal funds for an individual award is $3M ($1M per year for three years).
- 5-10 awards anticipated with cost share of 50% desired, the required cost share minimum must be at least 20% of the total allowable costs of the project
- Previously 24 PVSC awards were made with American Recovery and Reinvestment Act (ARRA) funding.
  - Nine 2-3 year projects funded between $1M and $3M of DOE funding
  - 15 exploratory projects funded for 1 year at $150k. These smaller projects won't be funded under the new solicitation given the large number that were recently awarded and the near-term nature of this FOA.

Justification: Current Technology Landscape and Future Developments



- Non-wafer components may become a larger fraction of total module cost.
- <$1/W modules and <$2/W total installed systems will require disruptive improvements to "fixed-cost" costs such as glass, encapsulants, conductors, and assembly.

- The U.S. is currently a major supplier of both polysilicon feedstock as well as non-wafer module components.
- To retain this completive edge, U.S. companies must produce new technology which improves performance, decrease costs, and anticipate changes in the PV products and processes.



Credit: Hisco

Application Contents

Name of Document	Format	File Name
SF 424 - Application for Federal Assistance	Part of Adobe Application Package	
Project/Performance Site Location(s)	Part of Adobe Application Package	
Other Attachments Form: Attach the following files to this form:	Part of Adobe Application Package	See Instructions
Project Summary/Abstract File	PDF	Summary.pdf
Project Narrative File, including the Letters of Commitment and Project Timetable	PDF	Project.pdf
Resume File	PDF	Resume.pdf
SF 424A Excel – Budget Information for Non-Construction Programs File	Excel	SF424A.xls
Budget Justification File	PDF	See Instructions
Subaward Budget File(s), if applicable Subaward Budget Justification(s), if applicable	Excel for Budget PDF for Justification	See Instructions
Budget for Federally Funded Research and Development Center (FFRDC) Contractor File, if applicable.	PDF	See instructions
Authorization from cognizant Contracting Officer for FFRDC, if applicable.	PDF	FFRDC_Auth.pdf
SF-LLL Disclosure of Lobbying Activities, if applicable	PDF	SF-LLL.pdf

Project Narrative

- Primary document evaluated by merit review committee.

- Fully describe the project structure, technology, objectives, and value.

Must include:

- Project Objectives
- Merit Review Criteria Discussion
  - Discuss each Criteria and Sub-Criteria
- Project Timetable
- Project Partners (if applicable)
- Bibliography and References

Not to Exceed 25 pages!

PVSC Requires Applicants to Quantify the Annual Impact of the Proposed Technology.

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Total Annual Impact Table: The Applicant must populate the table section below. This data quantifies both the current and anticipated out-year annual impact of the proposed technology

ITEM	UNITS	Present *	FY 2012 *	FY 2015 *
Baseline cost:	$/$W_p$ * or ¢/kWh			
Improved cost [Ψ]:	$/Wp or ¢/kWh			
Total Addressable Market:	MW/yr or MWhr/yr [ζ]			
Serviceable Addressable Market:	MW/yr or MWhr/yr			
Total Annual Impact [ξ]:	$(Millions)/yr			

[*] Peak Watts measured under standard test conditions.

[Ψ] All cost assumptions that are unrelated to the specific impact of the proposed technology must remain the same in both baseline and improved cost calculations.

[ζ] For MWhr/yr calculations assume the solar resource of Phoenix AZ as provided in SAM https://www.nrel.gov/analysis/sam/.

[ξ] Calculate by multiplying the difference between the Baseline Costs and Improved Costs by the Serviceable Addressable Market annual market potential. Be sure to use correct units.

Impact Discussion substantiates the Section 1 Table entries

Discussion must include the assumptions and explain the calculations in a transparent and straightforward manner. Claims or assertions that are unclear, appear overly optimistic, or are without supporting information, may be interpreted negatively by the merit review committee.

1. Baseline costs: Current and future costs of traditional technology which is directly comparable to the proposed technology and represents current best practices in industry. Expect baseline costs will decline and performance will improve over time as the baseline technology undergoes evolutionary improvements. Fully describe the assumptions for the baseline cot calculation in this section.
2. Improved Costs: The current and future costs of the proposed technology. If these are captured at the system level, the "improved system" should be identical to the baseline case technology except for the incorporation of the applicant's proposed technology. If this improved technology doesn't presently exist or is not commercially viable, the "present improved cost" can be equal to or even higher than the "present baseline costs". Discuss how the proposed improved technology will remain ahead of the improving baseline process or component - describe the sustainable market for the proposed technology as the industry evolves. Address how the proposed technology would improve upon the baseline technology in both quantitative (cost, power, energy) and qualitative or indirect (components or process enhancement or substitution, equipment cost reduction, etc.) terms. All cost assumptions that are unrelated to the specific advantages of the proposed technology must remain the same in both baseline and improved cost calculations.
3. Total Addressable Market: Current and projected annual global PV market size technically addressable by the proposed technology. Example: If the proposed technology is applicable only to traditional silicon wafers, Total Addressable Market would be the annual global production of traditional silicon wafers; not include other technologies not compatible with the technology.
4. Serviceable Addressable Market: Sub-set of the Total Addressable Market the applicant anticipates will realistically be its actual annual production (NOT production capacity). Describe how annual production will be achieved, including possible factors as a direct materials supplier, process licensing, equipment sales, etc. Describe how the necessary resources will be secured to scale up to a level of manufacturing capacity which exceeds projected annual production for the same year.
5. Total Annual Impact: Value calculated by multiplying the difference between the baseline and improved costs by the Serviceable Addressable Market. Be sure to use correct units. Discuss uncertainty in this total number. If appropriate include how the estimate changes under various assumptions. If contingent upon certain market conditions, define the conditions.

Merit Review Criteria

Review Criteria

Criterion 1 (40%): **Merit and Impact**

- Technical Merit, Relevance, Impact, and Uniqueness or Innovation

Criterion 2 (40%): **Management and Plan**

- Management, Verification and Decision Points, Commercialization, Partners

Criterion 3 (20%): **Qualifications**

- Capabilities, Resources, Commitment

Program Policy Factors

- Technological diversity.
- Cost Share above the required minimum.
- Impact of DOE funds measured by project's increased likelihood of achieving programmatic objectives
- Extent of work performed in the U.S. / Use or enhancement of U.S. domestic supply chain.

Evaluation Criteria:

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Criteria 1: Merit and Impact (Weight: 40%)

- Technical Merit: Quality of the applicant's technology description and extent to which this technology fits within the future market. Extent to which the technology will achieve a significant near to mid-term impact (2-5years). Clarity and accuracy of applicant's explanation of current industry best practices and the future improvements or limitations the project will address or resolve.
- Impact and Relevance: As presented in the Total Impact Discussion Section (Total Annual Impact Table) and Section 2 (Impact Discussion), the extent and significance of applicant's forecasted technology impact and reasonableness of $/W or LCOE projections as well as the size of future markets. Extent to which the proposed technology provides a generic benefit across a segment of the PV industry.
- Uniqueness or Innovation: Extent to which the proposed technology either anticipates a current industry trend or is differentiated from, yet complementary to, current cost reduction strategies of the relevant PV industry.

Criteria 2: Management and Plan (Weight: 40%)

- Project Management: Quality of applicant's research schedule with defined tasks, timing, and resource allocation. Clarity with which project risks are identified and correlated with program decision points.
- Verification, Decision Points and Deliverables: Extent and effectiveness of key milestones, decision points and deliverables including any independent testing and evaluation plans to verify progress.
- Commercialization Plan: Credibility and extent of the strategy for advancing the technology, reducing the project to practice, and implementing the technology in the industry.
- Partners: As appropriate, the extent to which participation of foreign-based entities, in the context of supporting domestic supply chain technologies, has been addressed.

Criteria 3: Qualifications, Resources and Capabilities (Weight: 20%)

- Qualifications and Capabilities: Extent to which the capabilities, experience, and qualifications of the organization and its members are consistent with and support the proposed scope of work and the proposed objectives. Extent to which the necessary business and technical management for supporting a high likelihood of success of the project have been identified.
- Resources: Adequacy of the facilities and resources for executing the proposed scope of work and relevance for supporting high volume PV manufacturing.
- Commitment: Adequacy of support as evidenced by letters of commitment from anticipated organization members, suppliers, and customers.

PVSC Requires Applicants to Quantify the Annual Impact of the Proposed Technology.

Where to Submit the Application Package:

APPLICATIONS MUST BE SUBMITTED THROUGH GRANTS.GOV TO BE CONSIDERED FOR AWARD.

Follow instructions in the User's Guide for application submissions. Applicants are responsible for verifying successful transmission, prior to the Application due date and time.
https://www.fedconnect.net/FedConnect/PublicPages/FedConnect_Ready_Set_Go.pdf

Where to Ask Questions About the Funding Opportunity Announcement Content:

To ask questions about the Funding Opportunity Announcement, use FedConnect at https://www.fedconnect.net/.
You must be a registered user in the system and submit questions by sending messages in your FedConnect email box. Part VII of this announcement explains how to submit questions to the Department of Energy (DOE).

Currently Submitted Questions:

- "What if proposed project is *enabling* and thus no baseline cost exists"?
  - Baseline refers to nearest comparable technology. DOE anticipates that most successful applicants will propose technology that replaces existing technology rather than offering evolutionary improvements.

- "What if the proposed technology will have its biggest impact in the post 2015 timeframe"?
  - This funding opportunity is targeting near-term technology development and thus impacts. Other DOE funding opportunities target technology development in the post 2015 timeframe.

How to submit questions:

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Questions regarding the content of the announcement must be submitted through the FedConnect system;

- You must register with FedConnect to respond as an interested party to submit questions, and to review responses to questions. It is recommended that you register as soon after release of the FOA as possible to have the benefit of all responses. More information is available at https://www.fedconnect.net/Fedconnect/PublicPages/FedConnect_Ready_Set_Go.pdf.
- DOE will try to respond to a question within 3 business days, unless a similar question and answer have already been posted on the website.

Questions pertaining to the submission of applications;

- This is through Grants.gov should be directed by e-mail to support@grants.gov or by phone to 1-800-518-4726. The Grants.gov Helpdesk is available 7:00 a.m. to 9:00 p.m. Eastern Time

Thank You

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